

March 25, 2021

Spring Hill Pavement Asset Management

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Managing the community's most valuable asset

THE CITY OF

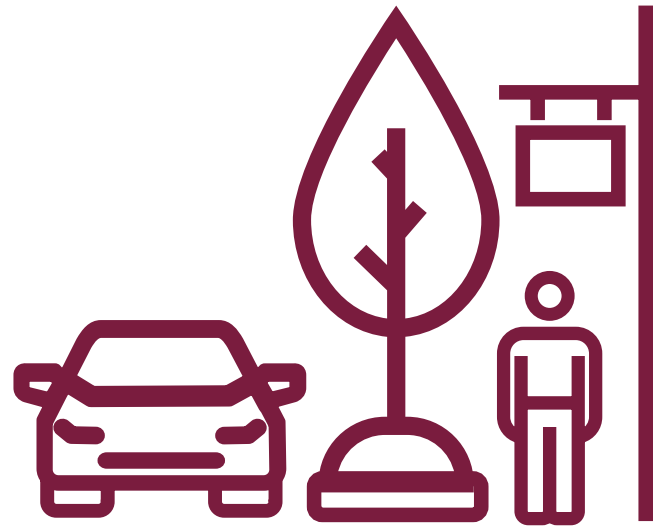
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Asset Management

Questions to ask for developing a street maintenance program:

- What do you have?
 - Street Assets owned
 - Condition assessment
- What tools can you use?
- How much funding?

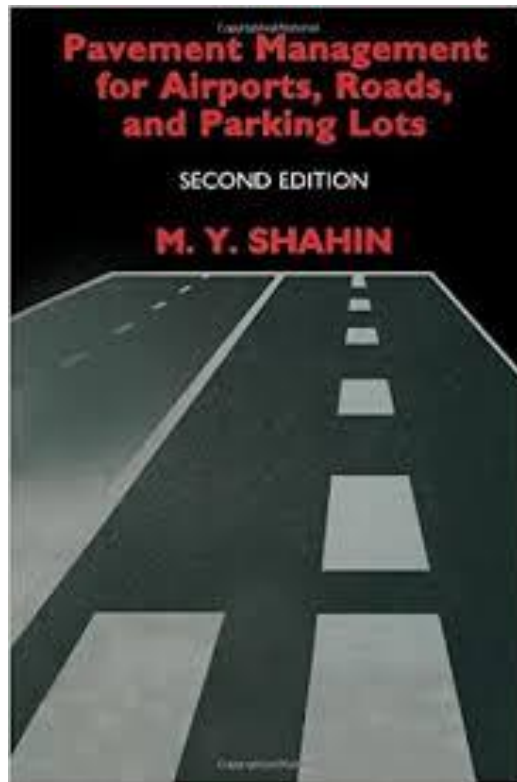


Spring Hill, KS Street Network

- Approximately 97 lane miles of City maintenance (City GIS) in 2016
- Additional miles 2017-2021 under review (est. 6+ LM)
- Estimated Valuation of \$100M+
 - (\$400/LF of construction)
- Mostly asphalt construction
- Newer streets typically curb, older ditch

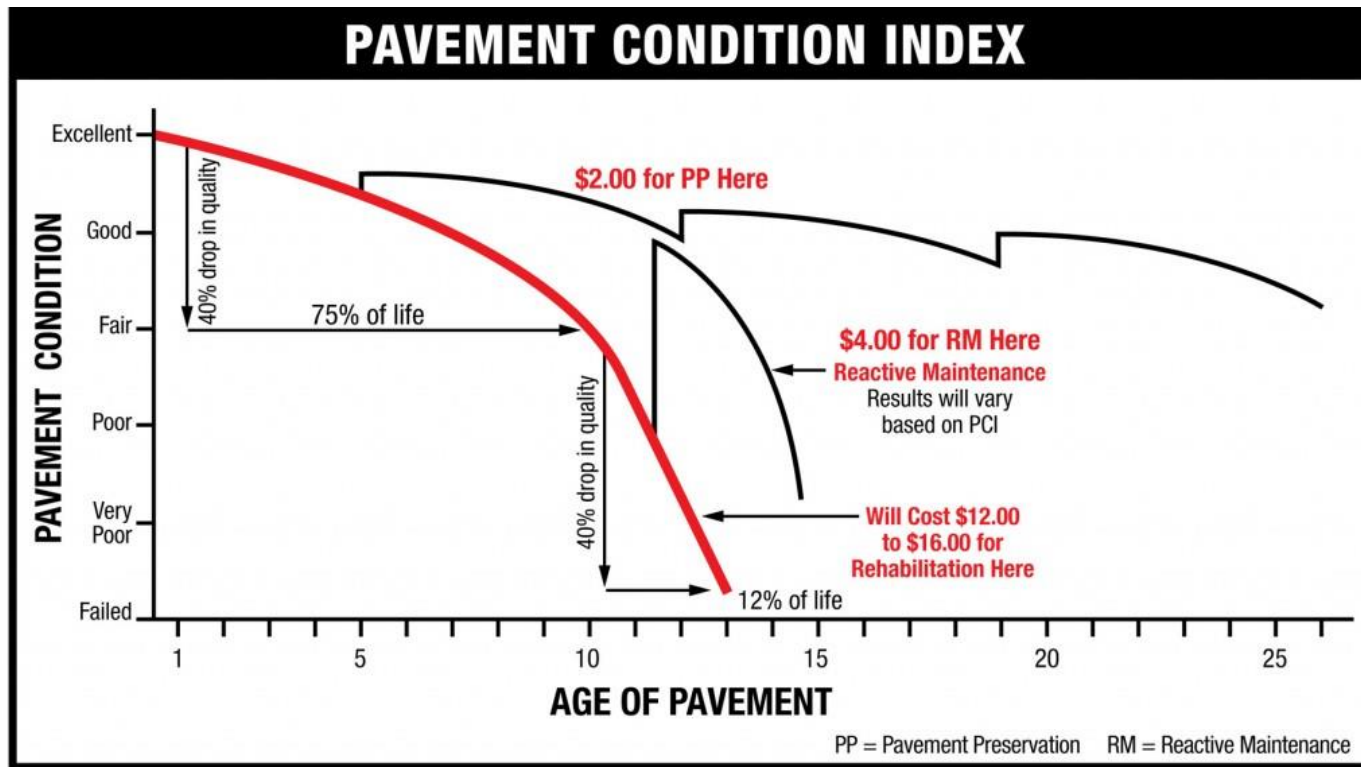


Fundamentals of Pavement Management



- **From the Preface:** “Managers and engineers who have adopted pavement technology understand that pavement management is a matter of...Pay now, or pay much more later.”

Conceptual Pavement Life Cycle Cost

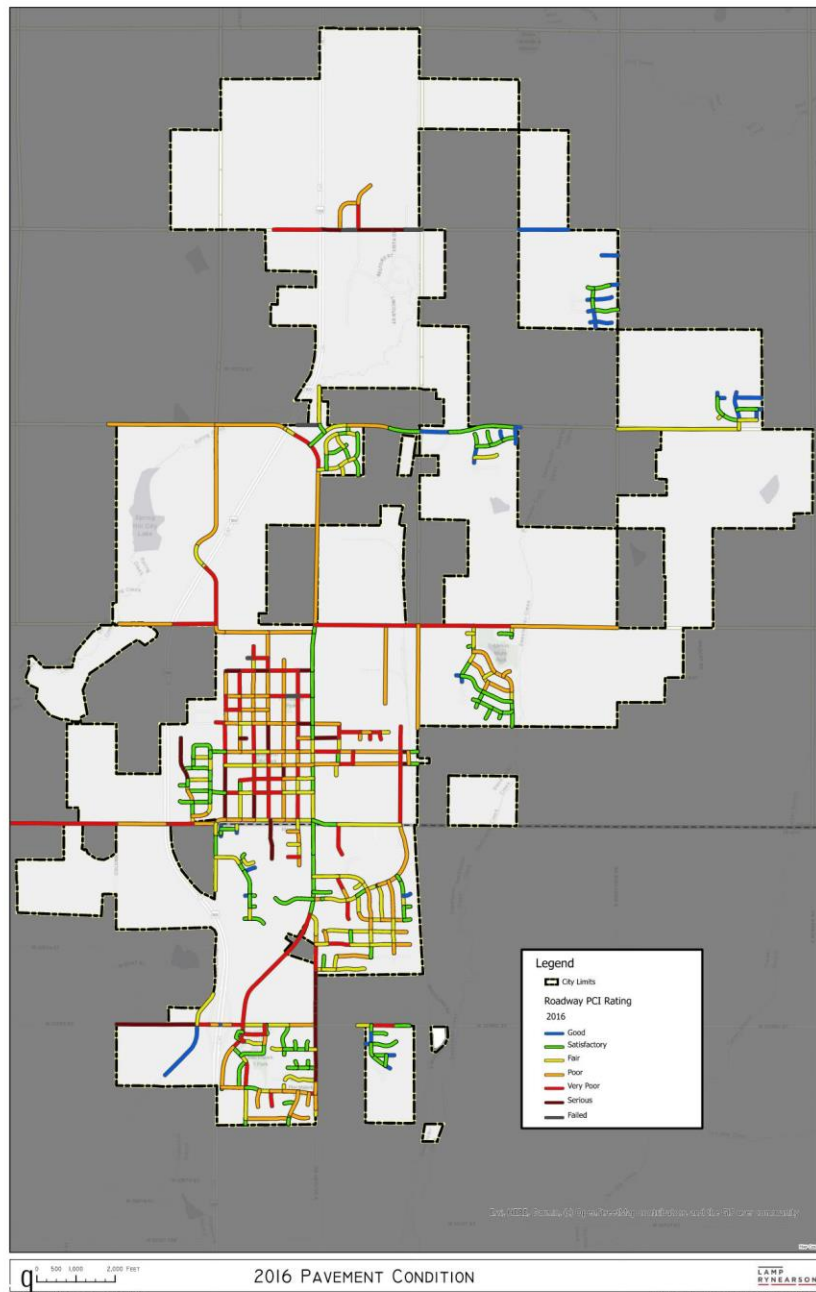


Pavement Management and Pavement Condition Index (PCI)

- Pavement Condition Index (PCI) range from 0 to 100
 - $PCI > 70$ = surface or joint problems, cheaper to repair
 - Critical Range = PCI between 55 and 70
 - $PCI < 40$ = Pavement failing, expensive to repair
- Condition Survey completed in 2016 by Stantec*

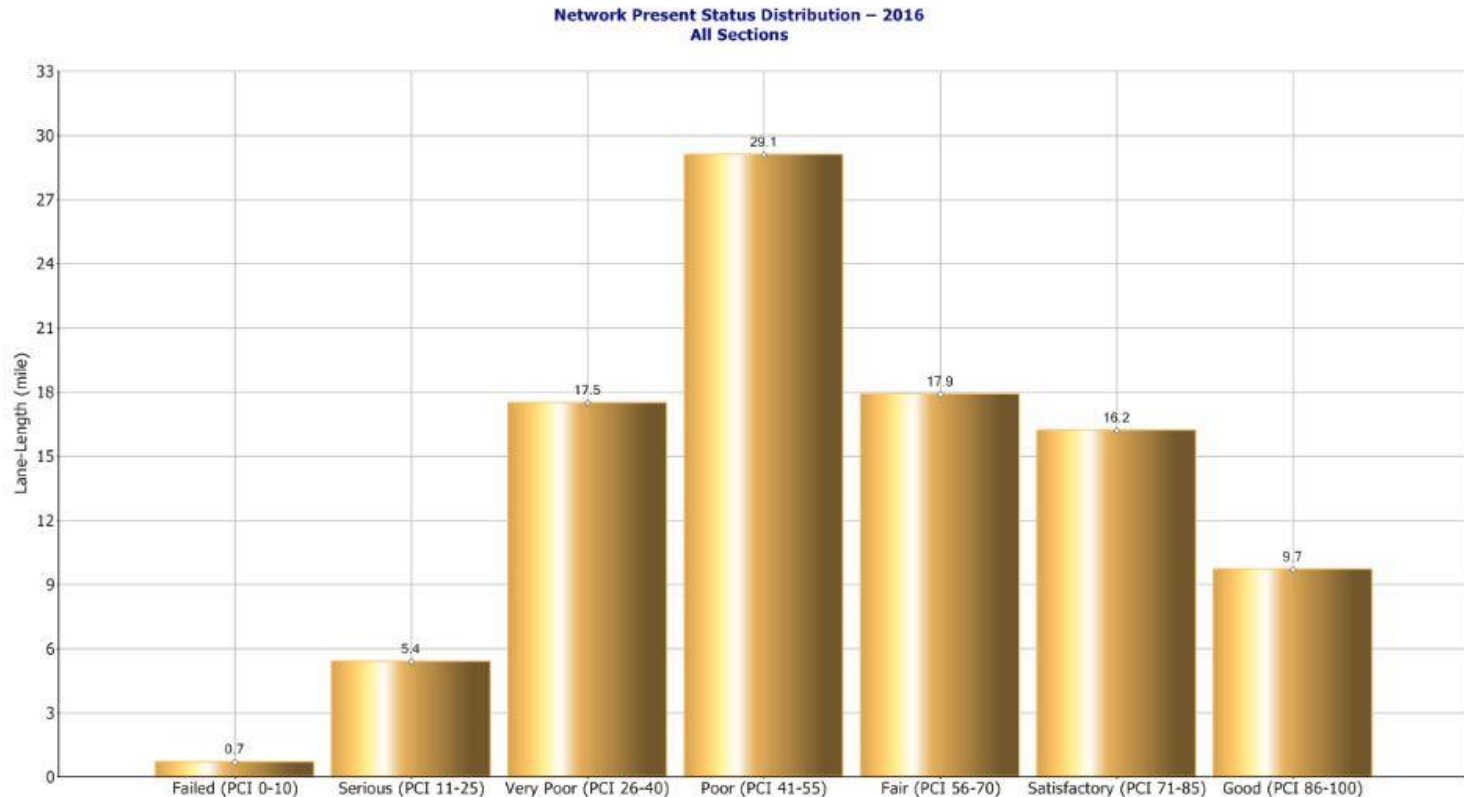
PCI Map

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Condition Distribution Data



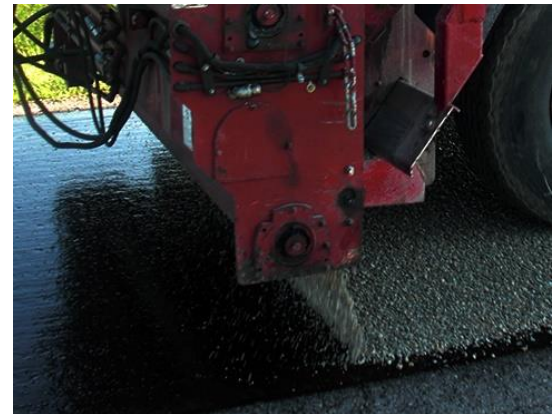
What's Next?

Maintenance Program

- Maintenance Technique “toolbox”
 - Crack Seal and Base Repair
 - Surface Treatments
 - “Paint it black” - i.e. Fog Seal, Scrub Seal, Seal Coat
 - More Substantial – Chip Seal (1/4” or 3/8” recommended), UBAS (Ultrathin Bonded Asphalt Surface), Microsurfacing
 - Heavy Treatments – Mill and Overlay, Thin Concrete Mill and Overlay
 - Reconstruction
- Maintenance Philosophy – **“Keep your good streets good”**, i.e. do not use expensive treatments, i.e. mill and overlay, on failed streets.

Chip Seal

- Chip Seal consist of spraying an asphalt emulsion mixture to seal cracks, spreading uniform chip rock, followed by rollers to embed the chip into the emulsion and street surface.
- The process takes less than one hour per street and up to 24 hours to completely cure. Can drive slowly on the surface during the curing process.
- Requires base repairs for failed asphalt areas, and crack seal prior to Chip Seal.
- There are many differences in Chip Seals, most common is 3/8" aggregate size (granite or trap rock). One of the most acceptable to residents in urban areas, yet has satisfactory performance, uses 1/4" Granite aggregate.



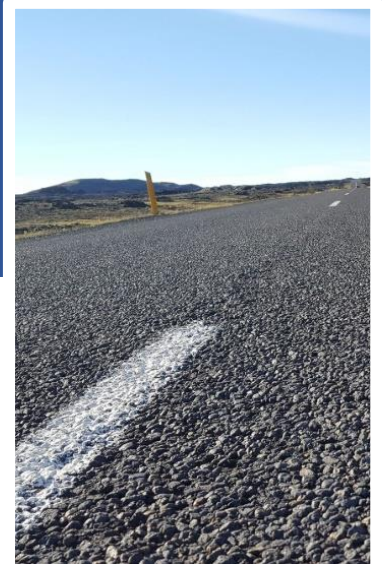
Chip Seal

ADVANTAGES

- Lowest cost (About \$3.50 per Square Yard, less for larger quantities)
- Best performance for the funds expended
- No milling, less strain on existing street base materials
- Better suited for streets in worse condition

DISADVANTAGES

- Leftover aggregate requires sweeping and is messy
- Street looks like a gravel surface and is rough
- Potential for asphalt emulsion to bleed through aggregate
- More frequent maintenance than a UBAS or mill and overlay
(About 6-12 years depending on underlying pavement condition)



Maintaining Streets in Spring Hill

- Approximately 100 Lane Miles
- Maintenance every 8-12 years would be 8-12% per year
- 8-12 Lane Miles per year
- This does not include street reconstruction
- Must halt decline of marginal streets



Proposed 2021 Maintenance

- 2021 Budget \$250k (from ACA, possible add'l funding in reserve)
- Preparation for 2022 chip seal (work to be by contract)
 - Base Repairs of selected streets, generally with PCI between 50 and 70
 - Crack Seal same streets
 - Estimated 11 Lane Miles
- Mobilize “in house” forces for crack seal of “3 year old” streets – Estimated 17 Lane Miles

In-House 2021 Maintenance

- Crack seal subdivisions
 - Single most effective maintenance operation
 - 3 years old and some older
 - By city forces as possible
 - Locations being established, needs field review
 - Fall/Winter work (lower temps, dry weather)
 - Retain \$15k in budget for materials



Draft Program Numbers

Draft 2021 Street Maintenance Program		
Item	2021 Cost	Notes
Crack Seal for Chip	\$35,000.00	11.6 Lane Miles
Crack Seal 3 yr old	\$15,000.00	17 Lane Miles
Base Repairs	\$216,962.70	Chip Preparation
Subtotal Constr.	\$266,962.70	
Design	\$13,348.14	
CA/CO	\$10,078.51	
Total Project	\$290,389.35	
Budget	\$250,000.00	
Over/Under	\$40,389.35	

Questions?

